

12/19/11





Technical Report for

Anderson, Mulholland & Associates

BMSMC, Building 5 Area, PR

SM04.00.06

Accutest Job Number: JA94117

Sampling Dates: 12/06/11 - 12/07/11

Report to:

Anderson, Mulholland & Associates

ttaylor@amaiconsult.com

ATTN: Terry Taylor

Total number of pages in report: 556



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

David N. Speis VP, Laboratory Director

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Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, PA, RI, SC, TN, VA, WV

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Sample Summary

Anderson, Mulholland & Associates

Job No:

JA94117

BMSMC, Building 5 Area, PR Project No: SM04.00.06

Sample Number	Collected Date	Time By	Received	Matr		Client Sample ID
JA94117-1	12/06/11	13:50 TT	12/08/11	SO	Soil	I-3 (5-6)
JA94117-2	12/06/11	14:50 TT	12/08/11	SO	Soil	I-2 (10-10.5)
JA94117-3	12/06/11	16:50 TT	12/08/11	SO	Soil	I-7 (10-11)
JA94117-4	12/07/11	10:15 TT	12/08/11	SO	Soil	I-8 (14-15)
JA94117-5	12/07/11	10:15 TT	12/08/11	SO	Soil	I-8 (14-15) DUP
JA94117-6	12/07/11	11:05 TT	12/08/11	SO	Soil	I-9 (8.5-9.5)
JA94117-7	12/07/11	11:05 TT	12/08/11	AQ	Trip Blank Soil	TB 120711



CASE NARRATIVE / CONFORMANCE SUMMARY

Client:

Anderson, Mulholland & Associates

Job No

JA94117

Site:

BMSMC, Building 5 Area, PR

Report Date

12/15/2011 3:33:11 P

On 12/08/2011, 6 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a temperature of 3 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JA94117 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ

Batch ID: V4B588

- All samples were analyzed within the recommended method holding time.
- Sample(s) JA93776-3MS, JA93776-3MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

Matrix: SO

Batch ID: VD7745

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA94117-1MS, JA94117-1MSD were used as the QC samples indicated

Matrix: SO

Batch ID:

VD7746

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA93637-1MS, JA93637-1MSD were used as the QC samples indicated.

Matrix: SO

Batch ID: VY5057

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA94124-3MS, JA94124-4DUP were used as the QC samples indicated.
- Matrix Spike Recovery(s) for Ethylbenzene, Toluene are outside control limits. Outside control limits due to matrix
- RPD(s) for Duplicate for Benzene, Ethylbenzene are outside control limits for sample JA94124-4DUP. High RPD due to possible sample analyzed from different vials.

Matrix: SO

Batch ID: VY5058

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA94077-1MS, JA94077-1MSD were used as the QC samples indicated.
- JA94077-1MSD for Dibromofluoromethane: Outside control limits due to matrix interference.
- JA94077-1MS for Dibromofluoromethane: Outside control limits due to matrix interference.

1

Volatiles by GC By Method SW846-8015 (DAI)

Matrix: AQ Batch ID: GGH3919

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Matrix: SO Batch ID: GGH3918

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JA93968-1MS, JA93968-1MSD were used as the QC samples indicated.
- JA94117-3 for Hexanol: Outside control limits due to matrix interference.

Wet Chemistry By Method SM18 2540G

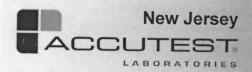
Matrix: SO Batch ID: GN59203

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

The data for SM18 2540G meets quality control requirements.



Sample Results	ar year toron
Report of Analysis	

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

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Client Sample ID: I-3 (5-6) Lab Sample ID: JA94117-1

File ID

D190254.D

Matrix:

SO - Soil

Method:

SW846 8260B SW846 5035

Date Received: 12/08/11

Date Sampled: 12/06/11

Percent Solids: 81.3

Project:

Run #1

BMSMC, Building 5 Area, PR

Analyzed

12/13/11

DF

Prep Date Prep Batch n/a

12/09/11 09:00

Analytical Batch VD7745 VD7746

Run #2	D190283.D	1 12	/13/11	ET	12/09/11 09:00	n/a	VD7746
	Initial Weight	Final Volume	Met	hanol Aliquo	ot		
Run #1	5.5 g	5.0 ml	100	ul			
Run #2	5.5 g	5.0 ml	2.5	111			

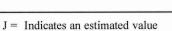
By

ET

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	11500	670	450	ug/kg	
71-43-2	Benzene	19.2	67	9.0	ug/kg	J
100-41-4	Ethylbenzene	191000 a	2700	400	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	5260	340	180	ug/kg	
108-88-3	Toluene	444000 a	2700	1000	ug/kg	
1330-20-7	Xylene (total)	736000 a	2700	500	ug/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	100%	103%	67-1	31%	
17060-07-0	1,2-Dichloroethane-D4	103%	100%	66-1	30%	
2037-26-5	Toluene-D8	108%	108%	76-1	25%	
460-00-4			98%	53-1	42%	

⁽a) Result is from Run# 2



MDL - Method Detection Limit

ND = Not detected RL = Reporting Limit

E = Indicates value exceeds calibration range



Page 1 of 1

Client Sample ID: I-3 (5-6) Lab Sample ID: JA94117-1

Matrix: Method: SO - Soil

SW846-8015 (DAI)

DF

1

n/a

By

XPL

Date Sampled: 12/06/11 Date Received:

n/a

Q

12/08/11

Percent Solids: 81.3

Project:

BMSMC, Building 5 Area, PR

Prep Date Prep Batch **Analytical Batch**

GGH3918

Run #1 Run #2

Initial Weight Run #1 5.0 g

File ID

GH85765.D

Run #2

CAS No. Compound Result RL MDL Units 67-63-0 Isopropyl Alcohol 57000 120 47 ug/kg 67-56-1 Methanol 0.00 250 63 ug/kg CAS No. **Surrogate Recoveries** Run#1 Run# 2 Limits

111-27-3 Hexanol 111-27-3 Hexanol

100% 62%

Analyzed

12/09/11

58-137% 58-137%

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank



Page 1 of 1

Client Sample ID: I-2 (10-10.5) JA94117-2 Lab Sample ID:

File ID

Matrix: Method: SO - Soil

SW846 8260B SW846 5035

DF

Date Sampled: 12/06/11 Date Received: 12/08/11

Percent Solids: 79.4

Project:

BMSMC, Building 5 Area, PR

Prep Date Prep Batch

Analytical Batch VD7746

12/09/11 09:00 Run #1 D190284.D 1 12/13/11 ET n/a VD7745 12/09/11 09:00 n/a Run #2 D190255.D 1 12/13/11 ET

By

Analyzed

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	4.8 g	5.0 ml	10.0 ul
Run #2	4.8 g	5.0 ml	100 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1 71-43-2	Acetone Benzene	2850 a ND a	790 79	520 10	ug/kg ug/kg	
100-41-4	00-41-4 Ethylbenzene		790	120	ug/kg	
108-10-1 108-88-3	4-Methyl-2-pentanone(MIBK) Toluene	106000 54900	3900 790	2100 300	ug/kg ug/kg	
1330-20-7	Xylene (total)	229000	790	140	ug/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	102%	100%	67-1	31%	
17060-07-0	1,2-Dichloroethane-D4	100%	101%		30%	
2037-26-5	Toluene-D8	110%	112%	8.00-5	25%	
460-00-4	4-Bromofluorobenzene	97%	100%	53-1	42%	

⁽a) Result is from Run# 2

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank



By

XPL

n/a

Page 1 of 1

3.2

Client Sample ID: 1-2 (10-10.5) Lab Sample ID: JA94117-2

Matrix: Method: SO - Soil

SW846-8015 (DAI) BMSMC, Building 5 Area, PR

DF

1

Date Sampled: 12/06/11

n/a

Q

Date Received: 12/08/11

GGH3918

Percent Solids: 79.4

Prep Date	Prep Batch	Analytical Batch

Run #1 Run #2

Project:

Initial Weight Run #1 5.1 g

File ID

GH85773.D

Run #2

CAS No. Compound Result RL MDL Units 67-63-0 Isopropyl Alcohol 2850 120 47 ug/kg 67-56-1 Methanol 3320 250 63 ug/kg

Analyzed

12/09/11

CAS No. **Surrogate Recoveries** Run#1 Run# 2 Limits 111-27-3 Hexanol 105% 58-137% 111-27-3 Hexanol 94% 58-137%

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank



Matrix:

Method:

Report of Analysis

Page 1 of 1

Client Sample ID: I-7 (10-11) Lab Sample ID: JA94117-3

SO - Soil

SW846 8260B SW846 5035

Date Sampled: 12/06/11 Date Received: 12/08/11

Percent Solids: 85.9

Project: BMSMC, Building 5 Area, PR

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	D190281.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746
Run #2	D190256.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7745
Run #3	D190282.D	5	12/13/11	ET	12/09/11 09:00	n/a	VD7746

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.2 g	5.0 ml	2.0 ul
Run #2	5.2 g	5.0 ml	100 ul
Run #3	5.2 g	5.0 ml	1.0 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	127000	32000	21000	ug/kg	
71-43-2	Benzene	33.5 a	64	8.5	ug/kg	J
100-41-4	Ethylbenzene	1320000 b	32000	4700	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	1080000 b	160000	84000	ug/kg	
108-88-3	Toluene	64100	3200	1200	ug/kg	
1330-20-7	Xylene (total)	4900000 b	32000	5900	ug/kg	į.
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run	# 3	Limits
1868-53-7	Dibromofluoromethane	102%	98%	103%	6	67-131%
17060-07-0	1,2-Dichloroethane-D4	100%	99%	101%	6	66-130%
2037-26-5	Toluene-D8	110%	113%	112%	6	76-125%
460-00-4	4-Bromofluorobenzene	97%	104%	101%	6	53-142%

⁽a) Result is from Run# 2

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank



⁽b) Result is from Run# 3

Page 1 of 1

Client Sample ID: I-7 (10-11) Lab Sample ID: JA94117-3

Matrix: Method:

Project:

SO - Soil

SW846-8015 (DAI)

BMSMC, Building 5 Area, PR

Date Sampled: 12/06/11 Date Received: 12/08/11

Percent Solids: 85.9

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85774.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2	GH85767.D	1	12/09/11	XPL	n/a	n/a	GGH3918

	Initial Weight						
Run #1	0.50 g						
Run #2	5.0 g						
CAS No.	Compound	Result	RL	MDL	Units	Q	

67-63-0	Isopropyl Alcohol	500000	1200	440 ug/kg
67-56-1	Methanol	1050000	2300	600 ug/kg
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	133%	367% ^a 262% ^a	58-137%
111-27-3	Hexanol	133%		58-137%

(a) Outside control limits due to matrix interference.

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank



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Report of Analysis

By

RS

Page 1 of 1

Client Sample ID: I-8 (14-15) Lab Sample ID: JA94117-4

SO - Soil

Date Sampled: 12/07/11

n/a

Matrix: Method:

SW846 8260B SW846 5035

Date Received: 12/08/11 Percent Solids: 84.7

Project:

BMSMC, Building 5 Area, PR

Analyzed

12/12/11

DF

1

Prep Date Prep Batch

12/09/11 09:00

Analytical Batch VY5058

Run #1 Run #2

Initial Weight

File ID

Y118403.D

Run #1 4.9 g

Run #2

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	15.0	12	8.0	ug/kg	
71-43-2	Benzene	1.5	1.2	0.16	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.18	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.0	3.2	ug/kg	
108-88-3	Toluene	ND	1.2	0.46	ug/kg	
1330-20-7	Xylene (total)	2.9	1.2	0.22	ug/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	91%		67-1	31%	
17060-07-0	1,2-Dichloroethane-D4	90%		66-1	30%	
2037-26-5	Toluene-D8	97%		76-1	25%	
460-00-4	4-Bromofluorobenzene	95%		53-1	42%	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank



Page 1 of 1

Client Sample ID: I-8 (14-15) Lab Sample ID: JA94117-4

Matrix:

SO - Soil

Method: Project:

SW846-8015 (DAI) BMSMC, Building 5 Area, PR Date Sampled: 12/07/11

Date Received: 12/08/11

Percent Solids: 84.7

Run #1 Run #2	File ID GH85768.D	DF 1	Analyzed 12/09/11	By XPL	Prep Date n/a	Prep Batch n/a	Analytical Batch GGH3918
Kuii #2							

	Initial Weight	
Run #1 Run #2	5.1 g	
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q	
67-63-0 67-56-1	Isopropyl Alcohol Methanol	ND ND	120 230	44 59	ug/kg ug/kg		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its		
111-27-3 111-27-3	Hexanol Hexanol	80% 133%		58-1 58-1	37% 37%		

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank



By

RS

Page 1 of 1

Client Sample ID: I-8 (14-15) DUP

Lab Sample ID:

JA94117-5

Date Sampled: 12/07/11

Matrix:

SO - Soil SW846 8260B SW846 5035 Date Received: 12/08/11 Percent Solids: 85.8

Method: Project:

BMSMC, Building 5 Area, PR

DF

1

Analytical Batch

Run #1

Y118404.D

File ID

Analyzed 12/12/11

Prep Date 12/09/11 09:00

Prep Batch n/a

VY5058

Run #2

Initial Weight

Run #1 4.6 g

Run #2

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	9.7	13	8.4	ug/kg	J
71-43-2	Benzene	1.3	1.3	0.17	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.19	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.3	3.3	ug/kg	
108-88-3	Toluene	ND	1.3	0.48	ug/kg	
1330-20-7	Xylene (total)	0.88	1.3	0.23	ug/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
1868-53-7	Dibromofluoromethane	91%		67-1	31%	
17060-07-0	1,2-Dichloroethane-D4	91%		66-1	30%	
2037-26-5	Toluene-D8	97%		76-1	25%	
460-00-4	4-Bromofluorobenzene	94%		53-1	42%	

ND = Not detected

MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank

E = Indicates value exceeds calibration range



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3.5

Client Sample ID: I-8 (14-15) DUP Lab Sample ID:

Matrix:

Project:

JA94117-5

Method:

SO - Soil

DF

BMSMC, Building 5 Area, PR

SW846-8015 (DAI)

Date Sampled: 12/07/11

Date Received: 12/08/11

Percent Solids: 85.8

Run #1 Run #2 File ID GH85769.D Analyzed 12/09/11

By XPL **Prep Date** n/a

Prep Batch n/a

Analytical Batch GGH3918

Initial Weight

Compound

Isopropyl Alcohol

Run #1 Run #2

CAS No.

67-63-0

67-56-1

5.0 g

RL 120

230

Run# 2

44 60

MDL

ug/kg ug/kg

Units

Q

Methanol CAS No. **Surrogate Recoveries**

111-27-3 Hexanol 111-27-3 Hexanol 85% 104%

Run# 1

Result

ND

ND

58-137% 58-137%

Limits

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank



Page 1 of 1

Client Sample ID: I-9 (8.5-9.5) Lab Sample ID: JA94117-6

SO - Soil

Date Sampled: 12/07/11 Date Received: 12/08/11

Matrix: Method:

SW846 8260B SW846 5035

Percent Solids: 76.5

Project:

BMSMC, Building 5 Area, PR

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	Y118384.D	1	12/10/11	RS	12/09/11 09:00	n/a	VY5057
Run #2	D190280 D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746

	Initial Weight	Final Volume	Methanol Aliquot	
Run #1	5.5 g			
Run #2	5.6 g	5.0 ml	100 ul	

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	12	7.9	ug/kg	
71-43-2	Benzene	0.48	1.2	0.16	ug/kg	J
100-41-4	Ethylbenzene	52.3	1.2	0.18	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.9	3.1	ug/kg	
108-88-3	Toluene	ND	1.2	0.45	ug/kg	
1330-20-7	Xylene (total)	2660 a	74	14	ug/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	92%	101%	67-1	31%	
17060-07-0	1,2-Dichloroethane-D4	94%	100%	66-1	30%	
2037-26-5	Toluene-D8	96%	112%	76-1	25%	
460-00-4	4-Bromofluorobenzene	92%	100%	53-1	42%	

⁽a) Result is from Run# 2

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank



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Client Sample ID:	I-9 (8.5-9.5)
Lab Sample ID:	JA94117-6
Matrix:	SO - Soil

SO - Soil SW846-8015 (DAI) Date Sampled: 12/07/11

Date Received: 12/08/11

Method: Project:

BMSMC, Building 5 Area, PR

Percent Solids: 76.5

Run #1	File ID	DF	Analyzed 12/09/11	By	Prep Date	Prep Batch	Analytical Batch
Run #2	GH85772.D	1		XPL	n/a	n/a	GGH3918

	Initial Weight		
Run #1	5.0 g		
Run #2	_		

CAS No.	Compound	Result	RL	MDL	Units	Q	
67-63-0 67-56-1	Isopropyl Alcohol Methanol	ND ND	130 260	50 67	ug/kg ug/kg		
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its		
111-27-3 111-27-3	Hexanol Hexanol	85% 98%			37% 37%		

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank



Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

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Client Sample ID: TB 120711 Lab Sample ID: JA94117-7

AQ - Trip Blank Soil Matrix: SW846 8260B Method:

BMSMC, Building 5 Area, PR

Date Sampled: 12/07/11 Date Received: 12/08/11

Percent Solids: n/a

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	4B13607.D	1	12/12/11	RS	n/a	n/a	V4B588
Run #2							

Purge Volume 5.0 ml Run #1

Run #2

Project:

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	7.6	ug/l	
71-43-2	Benzene	ND	1.0	0.22	ug/1	
100-41-4	Ethylbenzene	ND	1.0	0.21	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	5.0	1.2	ug/1	
108-88-3	Toluene	ND	1.0	0.15	ug/1	
1330-20-7	Xylene (total)	ND	1.0	0.17	ug/1	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7	Dibromofluoromethane	97%		77-1	20%	
17060-07-0	1,2-Dichloroethane-D4	92%		70-1	27%	
2037-26-5	Toluene-D8	92%		79-1	20%	
460-00-4	4-Bromofluorobenzene	85%		76-1	18%	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank



Page 1 of 1

Client Sample ID: TB 120711 Lab Sample ID: JA94117-7

Matrix: Method:

Project:

AQ - Trip Blank Soil

SW846-8015 (DAI)

BMSMC, Building 5 Area, PR

Date Sampled: 12/07/11 Date Received: 12/08/11

ercent	Solids:	n/a	

Run #1 Run #2	File ID GH85777.D	DF 1	Analyzed 12/09/11	By XPL	Prep D	ate	Prep Batch n/a	Analytical Batch GGH3919
CAS No.	Compound		Result	RL	MDL	Units	Q	
67-63-0	Isonropyl Alcoho	ol	ND	100	30	na/1		

67-56-1	Methanol	ND	200	46 ug/l
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
111-27-3	Hexanol	97%		48-150%
111-27-3	Hexanol	95%		48-150%

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody Sample Tracking Chronicle Internal Chain of Custody



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-5 7-8 (14-15)0	UP	1 1 1 1	1015	\vdash	+	5	H	++-	2		_1	×	×	×	\vdash	+	+	+-	1-1	\vdash	+	1405
-6 T-9 185-90	5	 	1105	1	1	2	+	+	2			-	×	×	\vdash	-	+	+	-	\vdash	\rightarrow	4972
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JA94117: Chain of Custody Page 1 of 3 .

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MEMORANDUM

TO: Terry Taylor

Anderson, Mulholland and Associates

DATE: December 20, 2011

FROM: R. Infante

FILE: JA94117

RE:

Data Validation

BMSMC: Building 5 Area, PR

SM04.00.06

Accutest Job Number: JA94117

SUMMARY

Full validation was performed on the data for six (6) soil samples and one (1) trip blank analyzed for selected volatile organic compounds using EPA method SW-846 8260B and six (6) soil samples and one (1) trip blank analyzed for alcohols (methanol and isopropyl alcohol) by EPA method SW-846 8015 (DAI). The samples were collected at the BMSMC Building 5 Area in Humacao, PR on December 6 and 7, 2011 and submitted to Accutest Laboratories that analyzed and reported the results under delivery group (SDG) JA94117.

The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: "USEPA Region 2, SOP HW-24, Standard Operating Procedure for the Validation of Organic Data Acquired using SW-846 Method 8260B (August 2009-Revision 2), the USEPA National Functional Guidelines for Low Concentration Organic Data Review (August 2009-Revision 2), the USEPA National Functional Guidelines for Organic Data Review for Low Concentration (SOP HW-13, August 2009-Revision 3) (noted herein as the "primary guidance document"). Also, QC criteria from "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods SW-846 (Final Update III, December 1996)," are utilized. The guidelines were modified to accommodate the non-CLP methodology. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

In general the data is valid as reported and may be used for decision making purposes. The data results are acceptable for use. Some of the results were qualified.

SAMPLES

The samples included in the review are listed below

FIELD SAMPLE ID	LABORATORY ID	ANALYSIS
I-3 (5 - 6)	JA94117-1	VOCs, ALCOHOLS
I-2 (10 - 10.5)	JA94117-2	VOCs, ALCOHOLS
I-7 (10 - 11)	JA94117-3	VOCs, ALCOHOLS
I-8 (14 - 15)	JA94117-4	VOCs, ALCOHOLS
I-8 (14 - 15)DUP	JA94117-5	VOCs, ALCOHOLS
I-9 (8.5 - 9.5)	JA94117-6	VOCs, ALCOHOLS
TB120711	JA94117-7	VOCs, ALCOHOLS

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method

- o Agreement of analysis conducted with chain of custody (COC) form
- o Holding time and sample preservation
- Gas chromatography/mass spectrometry (GC/MS) tunes
- o Initial and continuing calibrations
- Method blanks/trip blanks/field blank
- Surrogate spike recovery
- Matrix spike/matrix spike duplicate (MS/MSD) results
- o Internal standard performance
- o Field duplicate results
- o Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- o Quantitation limits and sample results

DISCUSSION

Agreement of Analysis Conducted with COC Request

Sample reports corresponded to the analytical request designated on the chain-of-custody form.

Holding Times and Sample Preservation

The cooler temperatures were within the QC acceptance criteria of $4^{\circ}C \pm 2^{\circ}C$.

Sample preservation was acceptable.

Samples analyzed within method recommended holding time.

GC/MS Tunes

The frequency and abundance of bromofluorobenzene (BFB) tunes were within the QC acceptance criteria. All samples were analyzed within the tuning criteria associated with the method.

Initial and Continuing Calibrations

VOCs

The percent relative standard deviations (%RSDs) and response factors (RFs) of all target analytes were within the QC acceptance criteria in the initial calibration. Correlation coefficients (r²) of target analytes were within the QC acceptance criteria. Ongoing accuracy of the instrument was determined by the analysis of a continuing calibration standard. All initial and continuing calibrations met the acceptance criteria except for the following analytes:

DATE	LAB FILE ID#	CRITERIA OUT: %D	COMPOUND	AFFECTED SAMPLES
=======	========		=======	===============
12/012/11	cc435-20	23.6	MIBK	JA94117-7

Qualify results (J) in affected samples.

Alcohols

The percent relative standard deviations (%RSDs) and response factors (RFs) of all target analytes were within the QC acceptance criteria in the initial calibration. Correlation coefficients (r²) of target analytes were within the QC acceptance criteria. Ongoing accuracy of the instrument was determined by the analysis of a continuing calibration standard. All initial and continuing calibrations met the acceptance criteria

Method Blank/Trip Blank/Field Blank

Target analytes were not detected in laboratory method blanks for VOCs and alcohols.

No target analytes (VOCs and alcohols) in the trip blank associated with this data set.

No field/equipment blanks associated with this data set.

Surrogate Spike Recovery

The surrogate recoveries were within the laboratory QC acceptance limits in all samples analyzed for VOCs and alcohols except for the following:

VOCs

• DBFM outside control limits in sample JA94077-1MS/1-MSD: 23/28 % recovery; control limit 67 - 137 %. No action taken; QC sample.

Alcohols

• Hexanol outside control limit in sample JA94117-3: 367/262 % recovery; control limit 58 - 137 %. No action taken; recoveries within control limits in Run #1.

MS/MSD

VOCs

Matrix spike was performed on samples JA94117-7MS/-7MSD (Aqueous); JA94124-3MS/-3MSD (Soil); JA94077-1MS/-1MSD (Soil); JA94077-1MS/-1MSD (Soil); JA943776-3MS/-3MSD. Recoveries and RPD for the MS/MSD were within laboratory control except for the following:

MS OR MSD	COMPOUND	% R	RPD	QC LIMITS	ACTION			
=======		====	====	========				
JA94124-3MS/-3MSD								
MS	Ethylbenzene	172_		20144	Qualify _results_(J)			
MS	Toluene	146		_29138	Qualify_results_(J)			

Affected sample: JA94117-6

Alcohols

Matrix spike was performed on samples JA93968-1MS/-1MSD (Soil). Recoveries and RPD for the MS/MSD were within laboratory control limits.

Internal Standard Performance

VOCs

Samples were spiked with the method specified internal standard. Internal standard performance met the QC acceptance criteria in all sample analyses.

Laboratory/Field Duplicate Results

Field duplicate associated with data package were samples JA94117-4/JA94117-5 (VOCs and alcohols). RPD results were within laboratory and generally acceptable control limits except for the following:

 Xylenes (Total) outside 50 % RPD control limit; no action taken because one of the two xylene concentration less than 5 X sample quantitation limit.

Laboratory duplicate associated with this data package were samples JA94124-4/-4 DUP. RPD results were within laboratory and generally acceptable control limits except for the following:

- Benzene 84 % RPD; control limit 50 %; no action taken because one of the two benzene concentration less than 5 X sample quantitation limit.
- Ethylbenzene 200 % RPD; control limit 50 %; no action taken because one of the two benzene concentration less than 5 X sample quantitation limit.

LCS/LCSD Results

VOCs

The laboratory analyzed one LCS (blank spike) associated with each matrix from this data set. The % recoveries of all spiked analytes were within the laboratory QC acceptance limits.

Alcohols

The laboratory analyzed one LCS (blank spike) associated with each matrix from this data set. The % recoveries of all spiked analytes were within the laboratory QC acceptance limits.

Quantitation Limits and Sample Results

Dilutions were not required with this data set except for the following samples (alcohols):

Calculations were spot checked.

Certification

The following samples JA94117-1; JA94117-2; JA94117-3; JA94117-4; JA94117-5; JA94117-6; and JA94117-7 were analyzed following standard procedures accepted by regulatory agencies. The quality control requirements met the methods criteria except in the occasions described in this document. The results are valid.

nael/Infante −\iéndez |{| 1888

Rafael Infante

Chemist License 1888

Client Sample ID: I-3 (5-6) Lab Sample ID:

JA94117-1 SO - Soil

Date Sampled: 12/06/11 Date Received: 12/08/11

Matrix: Method:

SW846 8260B SW846 5035

Percent Solids: 81.3

Project:

BMSMC, Building 5 Area, PR

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	D190254.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7745
Run #2	D190283.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.5 g	5.0 ml	100 ul
Run #2	5.5 g	5.0 ml	2.5 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1 71-43-2 100-41-4 108-10-1 108-88-3 1330-20-7	Acetone Benzene Ethylbenzene 4-Methyl-2-pentanone(MIBK) Toluene Xylene (total)	11500 19.2 191000 ^a 5260 444000 ^a 736000 ^a	670 67 2700 340 2700 2700	450 9.0 400 180 1000 500	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	100% 103% 108% 101%	103% 100% 108% 98%	67-1 66-1 76-1 53-1	30% 25%	

(a) Result is from Run# 2



ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

Client San Lab Samp Matrix: Method: Project:	le ID: JA9 SO SW	(5-6) 4117-1 - Soil 846-8015 (D. SMC, Buildi	AI) ng 5 Area, PR	71 80		Date	Sampled: Received: ent Solids:	12/06/11 12/08/11 81.3
Run #1 Run #2	File ID GH85765.D	DF 1	Analyzed 12/09/11	By XPL	Prep D n/a	ate	Prep Bate n/a	ch Analytical Batch GGH3918
Run #1 Run #2	Initial Weig 5.0 g	ht	L f					
CAS No.	Compound	l	Result	RL	MDL	Units	Q	
67-63-0 67-56-1	Isopropyl A Methanol	Alcohol	57000 0.00	120 250	47 63	ug/kg ug/kg	*	
CAS No.	Surrogate	Recoveries	Run# 1	Run# 2	Lim	its		
111-27-3	Hexanol		100%		58-1	37%		

62%



58-137%

111-27-3

Hexanol

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound

Client Sample ID: 1-2 (10-10.5)

Lab Sample ID:

JA94117-2

SO - Soil

Date Sampled: 12/06/11 Date Received: 12/08/11

Matrix:

Method:

SW846 8260B SW846 5035

Percent Solids: 79.4

Project:

BMSMC, Building 5 Area, PR

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	D190284.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746
Run #2	D190255.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7745

	Initial Weight	Final Volume	Methanol Aliquot	
Run #1	4.8 g	5.0 ml	10.0 ul	×2
Run #2	4.8 g	5.0 ml	100 ul	

VOA Special List

CAS No.	Compound	Result	\mathbf{RL}	MDL	Units	Q
67-64-1	Acetone	2850 a	790	520	ug/kg	
71-43-2	Benzene	ND a	79	10	ug/kg	
100-41-4	Ethylbenzene	57500	790	120	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	106000	3900	2100	ug/kg	
108-88-3	Toluene	54900	790	300	ug/kg	
1330-20-7	Xylene (total)	229000	790	140	ug/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limi	its	
1868-53-7	Dibromofluoromethane	102%	100%	67-1	31%	
17060-07-0	1,2-Dichloroethane-D4	100%	101%	66-1	30%	
2037-26-5	Toluene-D8	110%	112%	76-13		
460-00-4	4-Bromofluorobenzene	97%	100%	53-1	42% AS	CIAD

(a) Result is from Run# 2



ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

Page 1 of 1

Client Sample ID: I-2 (10-10.5) Lab Sample ID:

Matrix: Method:

Project:

JA94117-2 SO - Soil

SW846-8015 (DAI) BMSMC, Building 5 Area, PR Date Sampled: 12/06/11 Date Received: 12/08/11

Percent Solids: 79.4

Analytical Batch DF Analyzed By **Prep Date** Prep Batch File ID GGH3918 12/09/11 XPL n/a Run #1 GH85773.D 1 n/a Run #2

Initial Weight 5.1 g Run #1

Run #2

CAS No.	Compound	Result	RL	MDL	Units	Q
67-63-0	Isopropyl Alcohol	2850	120	47	ug/kg	
67-56-1	Methanol	3320	250	63	ug/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
111-27-3	Hexanol	105%		58-1	37%	
111-27-3	Hexanol	94%		58-1	37%	



E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound

Analytical Batch VD7746 VD7745

VD7746

Client Sample ID: I-7 (10-11) Lab Sample ID:

D190282.D

Matrix:

JA94117-3 SO - Soil

Date Sampled: 12/06/11 Date Received: 12/08/11

n/a

12/09/11 09:00

Method:

SW846 8260B SW846 5035

Percent Solids: 85.9

Project:

Run #3

BMSMC, Building 5 Area, PR

5

	File ID	DF	Analyzed	By	Prep Date	Prep Batch
Run #1	D190281.D	1	12/13/11	ET	12/09/11 09:00	n/a
Run #2	D190256.D	1	12/13/11	ET	12/09/11 09:00	n/a

12/13/11

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.2 g	5.0 ml	2.0 ul
Run #2	5.2 g	5.0 ml	100 ul
Run #3	5.2 g	5.0 ml	1.0 ul

ET

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1 71-43-2 100-41-4 108-10-1 108-88-3 1330-20-7	Acetone Benzene Ethylbenzene 4-Methyl-2-pentanone(MIBK) Toluene Xylene (total)	127000 33.5 a 1320000 b 1080000 b 64100 4900000 b	32000 64 32000 160000 3200 32000	21000 8.5 4700 84000 1200 5900	ug/kg ug/kg ug/kg ug/kg ug/kg ug/kg	J
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Run#	# 3	Limits
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	102% 100% 110% 97%	98% 99% 113% 104%	103% 101% 112% 101%	6	67-131% 66-130% 76-125% 53-142%

(a) Result is from Run# 2

(b) Result is from Run# 3



ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

Page 1 of 1

Client Sample ID: I-7 (10-11) Lab Sample ID: JA94117-3 Matrix: SO - Soil

Method:

Project:

SW846-8015 (DAI)

BMSMC, Building 5 Area, PR

Date Sampled: 12/06/11 Date Received: 12/08/11

Percent Solids: 85.9

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85774.D	1	12/09/11	XPL	n/a	n/a	GGH3918
Run #2	GH85767 D	1	12/09/11	XPL.	n/a	n/a	GGH3918

	Initial Weight			
Run #1	0.50 g			
Run #2	5.0 g			

CAS No.	Compound	Result	KL	MUL	Units	Ų
67-63-0 67-56-1	Isopropyl Alcohol Methanol	500000 1050000	1200 2300	440 600	ug/kg ug/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Lim	its	
111-27-3 111-27-3	Hexanol Hexanol	133% 133%	367% ^a 262% ^a		37% 137%	:JAD

(a) Outside control limits due to matrix interference.



ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

By

RS

Page 1 of 1

Client Sample ID: I-8 (14-15) Lab Sample ID: JA94117-4

Matrix:

SO - Soil

Date Sampled: 12/07/11 Date Received: 12/08/11

Method:

SW846 8260B SW846 5035

Percent Solids: 84.7

n/a

Project:

BMSMC, Building 5 Area, PR

Analytical Batch Prep Batch

Run #1

File ID Y118403.D DF Analyzed 1 12/12/11

Prep Date 12/09/11 09:00

VY5058

Run #2

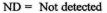
Initial Weight

Run #1 Run #2

4.9 g

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	15.0	12	8.0	ug/kg	
71-43-2	Benzene	1.5	1.2	0.16	ug/kg	
100-41-4	Ethylbenzene	ND	1.2	0.18	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.0	3.2	ug/kg	
108-88-3	Toluene	ND	1.2	0.46	ug/kg	
1330-20-7	Xylene (total)	2.9	1.2	0.22	ug/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limit	ts	
1868-53-7	Dibromofluoromethane	91%		67-13		
17060-07-0	1,2-Dichloroethane-D4	90%		66-13	0%	-00140
2037-26-5	Toluene-D8	97%		76-12	.5%	ASOCIADO
460-00-4	4-Bromofluorobenzene	95%		53-14	2%	RE ASOCIADO
					. ,	Hael Infa
					1	Hende,



MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

By

XPL

120

230

Page 1 of 1

Client Sample ID: I-8 (14-15) Lab Sample ID:

Matrix:

JA94117-4 SO - Soil

Date Sampled: Date Received:

12/07/11 12/08/11

Method:

SW846-8015 (DAI)

DF

1

Percent Solids: 84.7

Project:

BMSMC, Building 5 Area, PR

Run #1

File ID GH85768.D Analyzed 12/09/11

Prep Date n/a

Prep Batch n/a

Analytical Batch GGH3918

Run #2

Initial Weight

Compound

Run #1 Run #2

CAS No.

5.1 g

RL MDL Units Q Result

67-63-0 Isopropyl Alcohol 67-56-1 Methanol

ND ND 44 59 ug/kg ug/kg

CAS No. **Surrogate Recoveries** Run# 1

Run# 2

Limits

111-27-3 Hexanol 111-27-3 Hexanol 80% 133% 58-137% 58-137%



ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

By

RS

Page 1 of 1

Client Sample ID: I-8 (14-15) DUP

Lab Sample ID: Matrix:

JA94117-5 SO - Soil

Date Sampled: 12/07/11 Date Received: 12/08/11

Method:

SW846 8260B SW846 5035

DF

1

Project:

BMSMC, Building 5 Area, PR

Percent Solids: 85.8

Run #1

File ID Y118404.D Analyzed 12/12/11

Prep Date 12/09/11 09:00 **Prep Batch Analytical Batch** n/a

VY5058

Run #2

Initial Weight

4.6 g

Run #1

Run #2

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	9.7	13	8.4	ug/kg	J
71-43-2	Benzene	1.3	1.3	0.17	ug/kg	
100-41-4	Ethylbenzene	ND	1.3	0.19	ug/kg	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND	6.3	3.3	ug/kg	
108-88-3	Toluene	ND	1.3	0.48	ug/kg	
1330-20-7	Xylene (total)	0.88	1.3	0.23	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	91%		67-131%
17060-07-0	1,2-Dichloroethane-D4	91%		66-130%
2037-26-5	Toluene-D8	97%		76-125%
460-00-4	4-Bromofluorobenzene	94%		53-142%



ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

Accutest LabLink@649183 09:01 19-Dec-2011

Report of Analysis

By

XPL

RL

120

230

Page 1 of 1

Client Sample ID: I-8 (14-15) DUP

Lab Sample ID:

JA94117-5 SO - Soil

Date Sampled: 12/07/11 Date Received: 12/08/11

Matrix: Method:

SW846-8015 (DAI)

Project:

BMSMC, Building 5 Area, PR

DF

1

Percent Solids: 85.8

Run #1

File ID GH85769.D Analyzed 12/09/11

Prep Date n/a

Prep Batch n/a

Analytical Batch GGH3918

Run #2

Initial Weight

Compound

Isopropyl Alcohol

5.0 g

Run #1

CAS No.

67-63-0

67-56-1

Run #2

Result

44

60

MDL

Units

ug/kg ug/kg

Methanol CAS No. **Surrogate Recoveries**

Run# 1

ND

ND

Run# 2

Limits

111-27-3 Hexanol 111-27-3 Hexanol

85% 104% 58-137% 58-137%

> dael Infante Viénde/ 1888

ASOCIADO

0

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

Client Sample ID: 1-9 (8.5-9.5)

Lab Sample ID:

JA94117-6

Matrix:

SO - Soil

Method: Project:

SW846 8260B SW846 5035

BMSMC, Building 5 Area, PR

Date Sampled: 12/07/11

Date Received: 12/08/11

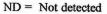
Percent Solids: 76.5

7	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	Y118384.D	1	12/10/11	RS	12/09/11 09:00	n/a	VY5057
Run #2	D190280.D	1	12/13/11	ET	12/09/11 09:00	n/a	VD7746

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.5 g		as a resource of the second of
Run #2	5.6 g	5.0 ml	100 ul

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1 71-43-2 100-41-4 108-10-1 108-88-3	Acetone Benzene Ethylbenzene 4-Methyl-2-pentanone(MIBK) Toluene	ND 0.48 52.3 J ND ND	12 1.2 1.2 5.9 1.2	7.9 0.16 0.18 3.1 0.45	ug/kg ug/kg ug/kg ug/kg ug/kg	J
1330-20-7 CAS No.	Xylene (total) Surrogate Recoveries	2660 ^a Run# 1	74 Run# 2	14 Limi	ug/kg	*
1868-53-7 17060-07-0 2037-26-5 460-00-4	Dibromofluoromethane 1,2-Dichloroethane-D4 Toluene-D8 4-Bromofluorobenzene	92% 94% 96% 92%	101% 100% 112% 100%	67-13 66-13 76-12 53-14	80%	ASOCIADO DE
(a) Result is	from Run# 2				,	Hael Infante



MDL - Method Detection Limit RL = Reporting Limit

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

Viende/



E = Indicates value exceeds calibration range

Page 1 of 1

Client Sample ID: 1-9 (8.5-9.5)

File ID

Lab Sample ID:

JA94117-6

Matrix:

SO - Soil

Method:

SW846-8015 (DAI)

DF

1

By

XPL

Date Sampled: 12/07/11 Date Received: 12/08/11

Percent Solids: 76.5

Project:

BMSMC, Building 5 Area, PR

Prep Batch **Prep Date** n/a

Analytical Batch GGH3918

Run #1 Run #2

Initial Weight

Compound

GH85772.D

Run #1 Run #2

CAS No.

67-56-1

111-27-3

111-27-3

5.0 g

Q RL MDL Units

n/a

67-63-0 Isopropyl Alcohol

ND ND

Result

Analyzed

12/09/11

50 130 260 67

ug/kg ug/kg

CAS No. **Surrogate Recoveries**

Hexanol

Hexanol

Methanol

Run# 1

Run# 2 Limits

85% 98% 58-137% 58-137%



ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

By

RS

Page 1 of 1

Client Sample ID: TB 120711 Lab Sample ID: JA94117-7

Matrix:

AQ - Trip Blank Soil

DF

1

Date Sampled: 12/07/11 Date Received: 12/08/11

Method:

SW846 8260B

Percent Solids: n/a

Project:

BMSMC, Building 5 Area, PR

Prep Batch Analytical Batch n/a

Run #1

File ID 4B13607.D Analyzed 12/12/11

Prep Date n/a

V4B588

Run #2

Purge Volume

Run #1

5.0 ml

Run #2

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	10	7.6	ug/l	
71-43-2	Benzene	ND	1.0	0.22	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.21	ug/l	
108-10-1	4-Methyl-2-pentanone(MIBK)	ND 1	5.0	1.2	ug/l	
108-88-3	Toluene	ND	1.0	0.15	ug/l	
1330-20-7	Xylene (total)	ND	1.0	0.17	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limit	ts	
1868-53-7	Dibromofluoromethane	97%		77-12	20%	
17060-07-0	1,2-Dichloroethane-D4	92%		70-12	7%	
2037-26-5	Toluene-D8	92%		79-12	0%	
460-00-4	4-Bromofluorobenzene	85%		76-11	8% . AS	OCIADODE
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						act Infanta
				8		Viendez 2
				1	10	acl Infante Mende 1888
				,	2.1	/3/
					Min	LICENCIADO
					100	LICENCI

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

Page 1 of 1

Client Sample ID: TB 120711 Lab Sample ID: JA94117-7

Matrix: Method:

CAS No.

AQ - Trip Blank Soil

Date Sampled: 12/07/11 Date Received: 12/08/11

Q

SW846-8015 (DAI) Project:

Compound

BMSMC, Building 5 Area, PR

Percent Solids: n/a

	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
Run #1	GH85777.D	1	12/09/11	XPL	n/a	n/a	GGH3919
Run #2							

RL

MDL

Units

67-63-0	Isopropyl Alcohol	ND	100	30 ug/l	
67-56-1	Methanol	ND	200	46 ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits	
111-27-3	Hexanol	97%		48-150%	
111-27-3	Hexanol	95%		48-150%	

Result



ND = Not detected

MDL - Method Detection Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

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Sample 6 Field ID / Point of Collection	MECHADI VISI II	Date	Time	Sampled by		o of boldes	₹ 3	2 2	-	-					-	+	+	+-	128		
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-2 1-2 (10-10.5)			H50	1	1	5	11	+	2	-	3		-	-	-	-	+	-	-	9010	1
-3 1-7 (10-11)		1	1650	1	1	5	H	++	2	_	3	_		×	\vdash	\rightarrow		+	-H	14/5	=-11
-4 T-8 (11-15)		12/7/11	1015	1		5	11	+	2	\rightarrow	3		_		-		+	+	$\vdash \vdash$	497	-
-5 1-8 (14-15) DUP			1015	H	1	5	Н	-1-1	2		3		•	×	\vdash	-		-	\vdash	816	
-6 I-9 (8.5-9.5)			1105	12	1	5	Ц.	4	2	44	3	-	•	X	\vdash	-		+	\vdash	1000	2
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Std. 16 Business Days Std. 19 Business Days (by Contract only)	Approved By (Acc	patent PM); / Date:			Commen	del "B" (1	Lavel 2			NYASI	Catego										-
18 Day RUSH						(Level 34	4)			State F			-		٠.	8,73	7442	1193	16		
5 Day RUSH					NJ Redu Commer				-	Other			_								
2 Day EMERGENCY				-		Commer												10	0880	(De) 12/2/11	
1 Day EMERGENCY Egheroency & Rosh T/A data available VIA Lablink						MI Red	red = 1	Results -	OC Sur	remary +	Partial F	Raw data			PILL	47	6/13/	n C	0000	BE 12/2/11	
Emergency & ROSD IVA 0202 available van Lablett		Sample Custody		mented	below as	ch time !	sample	es char	ge pos	sessio	n, inclu	ding co	urier	delivery.	Tieng.		leceived B	-/			
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JA94117: Chain of Custody Page 1 of 3

	Project Number:JA94117
	Date:12/06-07/2011
REVIEW OF VOLATILE ORO The following guidelines for evaluating volatile organics actions. This document will assist the reviewer in using procession and in better serving the needs of the data users. USEPA data validation guidance documents in the following HW-24, Validating Volatile Organic Compounds by GC/MS, 2), the USEPA National Functional Guidelines for Low/Med SOM01.2 SOP HW-33, August 2009 – Revision 2), the USE Data Review for Low Concentration (SOP HW-13, August, Methods for Evaluating Solid Waste, Physical/Chemical M 1998)," specifically for Methods 8000/8015 are utilized. The the data review worksheets are from the primary guidance do The hardcopied (laboratory name) _Accutestreviewed and the quality control and performance data summer reviewed and the guality control and guality control and guality	GANIC PACKAGE were created to delineate required validation professional judgment to make more informed The sample results were assessed according to g order of precedence: USEPA Region 2, SOP SW-846 Method 8260B (August, 2009-Revision ium Concentration Organic Data Review (SOW EPA National Functional Guidelines for Organic 2009-Revision 3). Also, QC criteria from "Test Methods SW-846 (Final Update IV, December QC criteria and data validation actions listed on occument, unless otherwise noted.
Lab. Project/SDG No.:JA94117No. of Samples:7	-
Trip blank No.:JA94117-7 Field blank No.: Equipment blank No.: Field duplicate No.: _ JA94117-4/-5	
X Data CompletenessX Holding TimesN/A_ GC/MS TuningN/A_ Internal Standard PerformanceX BlanksX Surrogate RecoveriesX Matrix Spike/Matrix Spike Duplicate	X Laboratory Control SpikesX_ Field DuplicatesX_ CalibrationsX_ Compound IdentificationsX_ Compound QuantitationX_ Quantitation Limits
Overall Comments:_IPA_and_Methanol_by_SW846-801	5_(DAI)
Definition of Qualifiers: J- Estimated results U- Compound not detected R- Rejected data UJ- Estimated flondetect Reviewer: Date: 12/20/2011	
Date12/20/2011	

DATA COMPLETENESS

MISSING INFORMATION	DATE LAB. CONTACTED	DATE RECEIVED

All criteria were met _X	
Criteria were not met	
and/or see below	

HOLDING TIMES

The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

SAMPLE ID	DATE SAMPLED	DATE ANALYZED	pН	ACTION
O/ (IVII LL ID				
	All samples analyzed w	vithin the recommended	method	holding time
· · · · · · · · · · · · · · · · · · ·				

Criteria

Aqueous samples – 14 days from sample collection for preserved samples (pH \leq 2, 4°C), no air bubbles.

Aqueous samples - 7 days from sample collection for unpreserved samples, 4°C, no air bubbles.

Soil samples- 7 days from sample collection.

Cooler temperature (Criteria: 4 ± 2 °C): 3°C - OK

<u>Actions</u>

If the VOCs vial(s) have air bubbles, estimate positive results (J) and reject nondetects (R).

If the % solids of soil samples is 10-50%, estimates positive results (J) and nondetects (UJ)

If the % solid of soil samples is < 10%, estimate positive results (J) and reject nondetects (R).

If holding times are exceeded but < 14 days beyond criteria, estimate positive results (J) and nondetects (UJ).

If holding times are exceeded but < 28 days beyond criteria, estimate positive results (J) and reject nondetects (R).

If holding times are grossly exceeded (> 28 days beyond criteria), reject all results (R).

If samples were not iced or if the ice were melted (> 10°C), estimate positive results (J) and nondetects (UJ).

		Crite	All criteria were metN/A eria were not met see below
GC/MS TUNING			
The assessment of the standard tuning QC lim		determine if the sample instru	mentation is within the
N/A The BFB perfo	ormance results were	reviewed and found to be within	the specified criteria.
N/A BFB tuning wa	as performed for ever	y 12 hours of sample analysis.	
f no, use professiona qualified or rejected.	l judgment to detern	nine whether the associated date	ta should be accepted,
List	the	samples	affected:
		· · · · · · · · · · · · · · · · · · ·	

If mass calibration is in error, all associated data are rejected.

All criteria were met _	Х
Criteria were not met	
and/or see below	

CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Instrument II	D numb	ers:	on:_12/09/11 GCGH		
DATE	LAB ID#	FILE	CRITERIA OUT RFs, %RSD, <u>%D</u> , r	COMPOUND	SAMPLES AFFECTED
	Initi	al and c	ontinuing calibration me	eet method performand	ce criteria
					1
# 1741.450.V					
				 	

Criteria

All RFs must be > 0.05 regardless of method requirements for SPCC.

All %RSD must be ≤ 15 % regardless of method requirements for CCC.

Date of initial calibration: 11/12/11

All %Ds must be < 20% regardless of method requirements for CCC.

It should be noted that Region 2 SOP HW-24 does not specify criterion for the curve correlation coefficient (r). A limit for r of > 0.995 has therefore been utilized as professional judgment.

Actions

If any compound has an initial RF or a continuing RF of < 0.05, estimate positive results (J) and reject nondetects (R), regardless of method requirements.

If any compound has a %RSD > 15%, estimate positive results (J) and use professional judgment to qualify nondetects.

If any compound has a %RSD > 90%, estimate positive results (J) and reject nondetects (R).

If any compound has a % D > 20%, estimate positive results (J) and reject nondetects (R).

If any compound has a % D > 20%, estimate positive results (J) and nondetects (UJ).

If any compound has a % D > 90%, estimate positive results (J) and reject nondetects (R).

If any compound has r > 0.995, estimate positive results and nondetects.

A separate worksheet should be filled for each initial curve

All criteria were metX
Criteria were not met
and/or see below

V A. BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately. Laboratory blanks

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
All_method	i_blank_meeth_	_method_speci	fic_criteria	
Field/Equipmen	t/Trip blank		75 5	,
DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
				s_data_package
				,

All criteria were metX_	
Criteria were not met	
and/or see below	

VB. BLANK ANALYSIS RESULTS (Section 3)

Blank Actions

Action Levels (ALs) should be based upon the highest concentration of contaminant determined in any blank. Do not qualify any blank with another blank. The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs:

ALs = 10x the amount of common contaminants (methylene chloride, acetone, 2-butanone, and toluene)

ALs = 5x for any other compounds

Specific actions are as follows:

If the concentration is < sample quantitation limit (SQL) and \le AL, report the compound as not detected (U) at the SQL.

If the concentration is \geq SQL but \leq AL, report the compound as not detected (U) at the reported concentration.

If the concentration is \geq SQL and > AL, report the concentration unqualified.

Notes:

High and low level blanks must be treated separately Compounds qualified "U" for blank contamination are still considered "hits" when qualifying for calibration criteria.

CONTAMINATION SOURCE/LEVEL	COMPOUND	CONC/UNITS	AL/UNITS	SQL	AFFECTED SAMPLES
					•
_					

All criteria were met
Criteria were not met
and/or see belowX

SURROGATE SPIKE RECOVERIES

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.

List the percent recoveries (%Rs) which do not meet the criteria for surrogate recovery. Matrix: solid/aqueous

SAMPLE ID	SURROGATE COMPOUND				ACTION
	1,2-DCA	DBFM	TOL-d8	BFB	
JA94117-3	367/262%				No_action_
SurrogateH	exanol			· · · · · · · · · · · · · · · · · · ·	
_Recoveries_OK_i	n_run_#1				
QC Limits* (Aqueo					
LL_to_UL_	to	to	to	to	
QC Limits* (Solid-L					
		to	to	to	
QC Limits* (Solid-N	vied)	40	to	ła.	
LL_{[0_UL_				10	
1,2-DCA = 1,2-Dicl DBFM = Dibromofl				Toluene-d8 omofluorobenzen	ie

- * QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
- * If QC limits are not available, use limits of 80 120 % for aqueous and 70 130 % for solid samples.

Actions:

QUALITY	%R < 10%	%R = 10% - LL	%R > UL
Positive results	J	J	J
Nondetects results	R	UJ	Accept

Surrogate action should be applied:

If one or more surrogate in the VOC fraction is out of specification, but has a recovery of > 10%.

If any one surrogate in a fraction shows < 10 % recovery.

All criteria were metX
Criteria were not met
and/or see below

VII. A MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

1. MS/MSD Recoveries and Precision Criteria

The laboratory should use one MS and a duplicate analysis of an unspiked field sample if target analytes are expected in the sample. If target analytes are not expected, MS/MSD should be analyzed. List the %Rs, RPD of the compounds which do not meet the criteria.

Sample ID:JA93968-1			Matrix/	Level:SOIL		
MS OR MSD	COMPOUND	% R	RPD	QC LIMITS	ACTION	
_MS/MSD_recoveries_and_RPD_within_laboratory_control_limits						

- * QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
- * If QC limits are not available, use limits of 70 130 %.

Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

MS/MSD criteria apply only to the unspiked sample, its dilutions, and the associated MS/MSD samples:

If the % R for the affected compounds were < LL (or 70 %), qualify positive results (J) and nondetects (UJ).

If the % R for the affected compounds were > UL (or 130 %), only qualify positive results (J).

If 25 % or more of all MS/MSD %R were < LL (or 70 %) or if two or more MS/MSD %Rs were < 10%, qualify all positive results (J) and reject nondetects (R).

A separate worksheet should be used for each MS/MSD pair.

All criteria were met	X
Criteria were not met	
and/or see below	_

VII. B MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD - Unspiked Compounds

It should be noted that Region 2 SOP HW-24 does not specify a MS/MSD criteria for the unspiked compounds in the sample. A %RSD of < 50% has therefore been utilized as professional judgment.

If all target analytes were spiked in the MS/MSD, this review element is not applicable.

List the %RSD of the compounds which do not meet the criteria.

Sample ID:			Matrix/Le	vel/Unit:	
COMPOUND	SAMPLE CONC.	MS CONC.	MSD CONC.	% RSD	ACTION
	· · · · · · · · · · · · · · · · · · ·				
					,
		-			
		1			*

Actions:

^{*} If the % RSD > 50, qualify the positive result in the unspiked samples as estimated (J).

^{*} If the % RSD is not calculated (NC) due to nondetected value, use professional judgment to qualify the data.

All criteria were metX
Criteria were not met
and/or see below

VIII. LABORATORY CONTROL SAMPLE (LCS) ANALYSIS

This data is generated to determine accuracy of the analytical method for various matrices.

1. LCS Recoveries Criteria

Where LCS spiked with the same analyte at the same concentrations as the MS/MSD? Yes or No. If no make note in data review memo.

List the %R of compounds which do not meet the criteria

	LCS ID	COMPOUND	% R	QC LIMIT			
Recove	Recoveries_within_laboratory_control_limits						
		VIA					

- * QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
- * If QC limits are not available, use limits of 70 130 %.

Actions:

QUALITY	%R < LL	%R > UL	
Positive results	J	J	
Nondetects results	R	Accept	

All analytes in the associated sample results are qualified for the following criteria.

If 25 % of the LCS recoveries were < LL (or 70 %), qualify all positive results (j) and reject nondetects (R).

If two or more LCS were below 10 %, qualify all positive results as (J) and reject nondetects (R).

2. Frequency Criteria:

Where LCS analyzed at the required frequency and for each matrix? <u>Yes</u> or No. If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify data accordingly. Discuss any actions below and list the samples affected.

		All criteria were metX Criteria were not met and/or see below
IX.	FIELD DUPLICATE PRECISION	
	Sample IDs:JA94117-4/-5	Matrix:_SOIL

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information. Suggested criteria: RPD \pm 30% for aqueous samples, RPD \pm 50 % for solid samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

COMPOUND	SQL	SAMPLE CONC.	DUPLICATE CONC.	RPD	ACTION
					47.
				ļ	
**************************************	RPI) D within laboratory a	l nd generally acceptable	control l	imits
				 	

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

All criteria were metN/A
Criteria were not met
and/or see below

X. INTERNAL STANDARD PERFORMANCE

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

List the internal standard area of samples which do not meet the criteria.

- * Area of +100% or -50% of the IS area in the associated calibration standard.
- * Retention time (RT) within 30 seconds of the IS area in the associated calibration standard.

DATE	SAMPLE ID	IS OUT	IS AREA	ACCEPTABLE ACTION RANGE

				NOTE WAS A SECOND CONTRACT OF A SECOND
		· · · · · · · · · · · · · · · · · · ·		
W	1111 - 11		ur area es es es es es especies e	An Annual History, a control of the
	· · · · · · · · · · · · · · · · · · ·			

Actions:

1. IS actions should be applied to the compound quantitated with the out-of-control ISs

QUALITY .	IS AREA < -25%	IS AREA = -25 % TO - 50%	IS AREA > + 100%
Positive results	J	J	J
Nondetected results	R	UJ	ACCEPT

 If a IS retention time varies more than 30 seconds, the chromatographic profile for that sample must be examined to determine if any false positive or negative exists. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for the sample fraction.

All criteria were met	X
Criteria were not met	
and/or see below	

XII. SAMPLE QUANTITATION

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

JA94117-3

Methanol

RF = 13.07

[] = (8776373)/(13.07)

= 671,490 ppb OK

All criteria were met _X
Criteria were not met
and/or see below

	~ .			TIA			-
XII.	(1)	IVVI	TITA	111	וואו	INAL	10
AII.	G/L	JMIN	1111		'IV L	_HVII	10

A. Dilution performed

SAMPLE ID	DILUTION FACTOR	REASON FOR DILUTION
		7
		97. gc . s
	· · · · · · · · · · · · · · · · · · ·	
	i	

3.	Percent Solids		
	List samples which have	≤ 50 % solids	
		**	······································
Actions		mple is 10 500/ petimete positive	a requisite (I) and nandatacta (LLE
	ii the % solids of a soli sa	mple is 10-50%, estimate positive	e results (J) and nondetects (UJ)
	If the % solids of a soil sa (R)	mple is < 10%, estimate positive	results (J) and reject nondetects

	Project Number:JA94117 Date: 12/06-07/2011
REVIEW OF VOLATILE ORGATHE The following guidelines for evaluating volatile organics we actions. This document will assist the reviewer in using prodecision and in better serving the needs of the data users. The USEPA data validation guidance documents in the following of HW-24, Validating Volatile Organic Compounds by GC/MS, SN 2), the USEPA National Functional Guidelines for Low/Medium SOM01.2 SOP HW-33, August 2009 – Revision 2), the USEPA Data Review for Low Concentration (SOP HW-13, August, 2009), and the Sound	Date:12/06-07/2011
The hardcopied (laboratory name) _Accutest	data package received has been rized. The data review for VOCs included:
Lab. Project/SDG No.:JA94117No. of Samples:7	Sample matrix:Soil
Trip blank No.:JA94117-7 Field blank No.: Equipment blank No.: Field duplicate No.:	
X Data CompletenessX Holding TimesX GC/MS TuningX Internal Standard PerformanceX BlanksX_ Surrogate RecoveriesX Matrix Spike/Matrix Spike Duplicate Overall Comments:_Selected_VOC's_by_SW846-8260B	X Laboratory Control SpikesX Field DuplicatesX CalibrationsX Compound IdentificationsX Compound QuantitationX Quantitation Limits
Definition of Qualifiers: J- Estimated results U- Compound not detected R- Rejected data UJ- Estimated nondetect	
Reviewer: / / / / / / / / / / / / / / / / / / /	

DATA COMPLETENESS

MISSING INFORMATION	DATE LAB. CONTACTED	DATE RECEIVED

		17

All criteria were metX
Criteria were not met
and/or see below

HOLDING TIMES

The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

SAMPLE ID	DATE SAMPLED	DATE ANALYZED	pН	ACTION
	All samples analyzed w	rithin the recommended	method	holding time

Criteria

Aqueous samples – 14 days from sample collection for preserved samples (pH \leq 2, 4°C), no air bubbles.

Aqueous samples – 7 days from sample collection for unpreserved samples, 4°C, no air bubbles. Soil samples- 7 days from sample collection.

Cooler temperature (Criteria: 4 + 2 °C): 3°C - OK

Actions

If the VOCs vial(s) have air bubbles, estimate positive results (J) and reject nondetects (R).

If the % solids of soil samples is 10-50%, estimates positive results (J) and nondetects (UJ)

If the % solid of soil samples is < 10%, estimate positive results (J) and reject nondetects (R).

If holding times are exceeded but < 14 days beyond criteria, estimate positive results (J) and nondetects (UJ).

If holding times are exceeded but < 28 days beyond criteria, estimate positive results (J) and reject nondetects (R).

If holding times are grossly exceeded (> 28 days beyond criteria), reject all results (R).

If samples were not iced or if the ice were melted (> 10°C), estimate positive results (J) and nondetects (UJ).

		Crite	All criteria were metX ria were not met see below
GC/MS TUNING			
The assessment of the tun standard tuning QC limits	ing results is to determine	if the sample instrur	nentation is within the
XThe BFB performan	ce results were reviewed an	d found to be within	the specified criteria.
XBFB tuning was per	formed for every 12 hours o	f sample analysis.	
If no, use professional judg qualified or rejected.	gment to determine whether	the associated date	a should be accepted,
List	the	samples	affected:
If mass calibration is in error	r, all associated data are reje	ected.	

All criteria were met
Criteria were not met
and/or see belowX

CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Date of initial calibration:	_09/14/11	10/28/11	11/08/11
Dates of continuing calibration:	12/12/11	12/12/11_12/13/11	12/10/1112/12/11
Instrument ID numbers:	GCMS4B_	GCMSD	GCMSY
Matrix/Level:Aqueous/low	7 1 20 1		
-			

DATE	LAB FILE ID#	CRITERIA OUT RFs, %RSD, <u>%D</u> , r	COMPOUND	SAMPLES AFFECTED
12/12/2011	cc435-20	23.6	MIBK	JA94117-7
········				
		, , , , , , , , , , , , , , , , , , , ,		

Criteria

All RFs must be > 0.05 regardless of method requirements for SPCC.

All %RSD must be < 15 % regardless of method requirements for CCC.

All %Ds must be < 20% regardless of method requirements for CCC.

It should be noted that Region 2 SOP HW-24 does not specify criterion for the curve correlation coefficient (r). A limit for r of > 0.995 has therefore been utilized as professional judgment.

Actions

If any compound has an initial RF or a continuing RF of < 0.05, estimate positive results (J) and reject nondetects (R), regardless of method requirements.

If any compound has a %RSD > 15%, estimate positive results (J) and use professional judgment to qualify nondetects.

If any compound has a %RSD > 90%, estimate positive results (J) and reject nondetects (R).

If any compound has a % D > 20%, estimate positive results (J) and reject nondetects (R).

If any compound has a % D > 20%, estimate positive results (J) and nondetects (UJ).

If any compound has a % D > 90%, estimate positive results (J) and reject nondetects (R).

If any compound has r > 0.995, estimate positive results and nondetects.

A separate worksheet should be filled for each initial curve

All criteria were metX	
Criteria were not met	
and/or see below	

V A. BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

Laboratory blanks

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
All_method			fic_criteria	
Field/Equipment	/Trip blank			
DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
_No_target_ana _No_ field/equip	lytes_detected_ ment_blanks_a	_in_the_trip_bla analyzed_with_	ank_analyzed_with_this_data this_data_package	package
			The same of the sa	
······································				

All criteria were metX
Criteria were not met
and/or see below

VB. BLANK ANALYSIS RESULTS (Section 3)

Blank Actions

Action Levels (ALs) should be based upon the highest concentration of contaminant determined in any blank. Do not qualify any blank with another blank. The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs:

ALs = 10x the amount of common contaminants (methylene chloride, acetone, 2-butanone, and toluene)

ALs = 5x for any other compounds

Specific actions are as follows:

If the concentration is < sample quantitation limit (SQL) and \le AL, report the compound as not detected (U) at the SQL.

If the concentration is \geq SQL but \leq AL, report the compound as not detected (U) at the reported concentration.

If the concentration is \geq SQL and > AL, report the concentration unqualified.

Notes:

High and low level blanks must be treated separately

Compounds qualified "U" for blank contaminations are still considered "hits" when qualifying for calibration criteria.

CONTAMINATION SOURCE/LEVEL	COMPOUND	CONC/UNITS	AL/UNITS	SQL	AFFECTED SAMPLES
		1			
		1			
		4			A COLUMN AND A COL

All criteria were met
Criteria were not met
and/or see belowx

SURROGATE SPIKE RECOVERIES

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.

List the percent recoveries (%Rs) which do not meet the criteria for surrogate recovery. Matrix: solid/aqueous

SAMPLE ID		SURROGA	ACTION		
1,2	2-DCA	DBFM	TOL-d8	BFB	
_JA94077-1MS		23			No_action_
_JA94077-1MSD		28			No_action_
_All_surrogate_recove	ries_within_l	aboratory_co	ntrol_limits		
		<u> </u>			
QC Limits* (Aqueous)					
LL_to_UL_ QC Limits* (Solid-Low)		to	to	to	
LL_to_UL QC Limits* (Solid-Med			_137to	to	u
LL_to_UL	to	to	to	to	
1,2-DCA = 1,2-Dichloro DBFM = Dibromofluoro		ŀ		= Toluene-d8 Bromofluorobenz	zene

- * QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
- * If QC limits are not available, use limits of 80 120 % for aqueous and 70 130 % for solid samples.

Actions:

QUALITY	%R < 10%	%R = 10% - LL	%R > UL
Positive results	J	J	J
Nondetects results	R	UJ	Accept

Surrogate action should be applied:

If one or more surrogate in the VOC fraction is out of specification, but has a recovery of > 10%. If any one surrogate in a fraction shows < 10 % recovery.

All criteria were metX	
Criteria were not met	
and/or see below	

VII. A MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

1. MS/MSD Recoveries and Precision Criteria

The laboratory should use one MS and a duplicate analysis of an unspiked field sample if target analytes are expected in the sample. If target analytes are not expected, MS/MSD should be analyzed. List the %Rs, RPD of the compounds which do not meet the criteria.

Sample ID:JA Sample ID:JA Sample ID:JA	94077-1 94117-7	-	Matrix/ Matrix/ Matrix/ Matrix/	/Level:SOIL /Level:SOIL /Level:AQUEO /Level:_SOIL /Level:_SOIL /Level:_SOIL	US
MS OR MSD JA94124-3MS/-3	COMPOUND	% R	RPD	QC LIMITS	ACTION
MS		172		20144	Qualify _results_(J)
IVIS MS	Toluene	700 40000			Qualify_results_(J)

Affected sample: JA94117-6

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.

* If QC limits are not available, use limits of 70 – 130 %. Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

MS/MSD criteria apply only to the unspiked sample, its dilutions, and the associated MS/MSD samples:

If the % R for the affected compounds were < LL (or 70 %), qualify positive results (J) and nondetects (UJ).

If the % R for the affected compounds were > UL (or 130 %), only qualify positive results

If 25 % or more of all MS/MSD %R were < LL (or 70 %) or if two or more MS/MSD %Rs were < 10%, qualify all positive results (J) and reject nondetects (R).

A separate worksheet should be used for each MS/MSD pair.

		All criteria were metX Criteria were not met and/or see below
IX.	FIELD DUPLICATE PRECISION	
	Sample IDs:JA94117-4/-5	Matrix:_SOIL

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information. Suggested criteria: RPD \pm 30% for aqueous samples, RPD \pm 50 % for solid samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

COMPOUND	SQL	SAMPLE CONC.	DUPLICATE CONC.	RPD	ACTION

RPD within lat	ooratory cause or	and generally accep	l table control limits; exc trations was less than 5	ept for Xy X samp	│ /lenes (Total); no action le quantitation limit

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

		All criteria were metX Criteria were not met and/or see belowX
IX.	LABORATORY DUPLICATE PRECISION	CREDGIT WALLE
	Sample IDs:JA94124-4	Matrix:_SOIL

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information. Suggested criteria: RPD \pm 30% for aqueous samples, RPD \pm 50 % for solid samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

COMPOUND	SQL	SAMPLE CONC.	DUPLICATE CONC.	RPD	ACTION
Benzene	0.2	0.76	0.31	84	No action
Ethylbenzene	0.2	0.38	ND	200	No action
• · · · · · · · · · · · · · · · · · · ·					
				-	
				-	
					1

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and auplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

All criteria were metX
Criteria were not met
and/or see below

X. INTERNAL STANDARD PERFORMANCE

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

List the internal standard area of samples which do not meet the criteria.

- * Area of +100% or -50% of the IS area in the associated calibration standard.
- * Retention time (RT) within 30 seconds of the IS area in the associated calibration standard.

DATE	SAMPLE ID	IS OUT	IS AREA	ACCEPTABLE RANGE	ACTION
_Internal_sta	ndard_area_within_	_laboratory_cor	ntrol_limits		MATERIAL AND LONG
· · · · · · · · · · · · · · · · · · ·					
	**				
		94 20a	F-8		
Actions:					

1. IS actions should be applied to the compound quantitated with the out-of-control ISs

QUALITY	IS AREA < -25%	IS AREA = -25 % TO - 50%	IS AREA > + 100%
Positive results	J	J	J
Nondetected results	R	UJ	ACCEPT

 If a IS retention time varies more than 30 seconds, the chromatographic profile for that sample must be examined to determine if any false positive or negative exists. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for the sample fraction.

All criteria were metX
Criteria were not met
and/or see below

XII. SAMPLE QUANTITATION

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

JA94117-1

ACETONE

RF = 0.064

[] = (61194)(50)/(280401)(0.064)

= 170.5 ppb OK

All criteria were met _X
Criteria were not met
and/or see below

XII.	OIL	ANTI	TATIC	1116	INAIT	C
All.	UU	AIIII	IAII	JIYL	-11411	O

A. Dilution performed

SAMPLE ID	DILUTION FACTOR	REASON FOR DILUTION
JA94117-3	5 X	Several VOCs outside calibration range
- AARTON - A		

В.	Percent Solids		
	List samples which have	≤ 50 % solids	
Actions	NO.		
	If the % solids of a soil sa	mple is 10-50%, estimate positive	results (J) and nondetects (UJ)
	If the % solids of a soil sa (R)	mple is < 10%, estimate positive	results (J) and reject nondetects